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ABSTRACT

A survey of Virginia's local school divisions was conducted to obtain data on the number of students in Virginia with traumatic brain injury (TBI) and the nature of the services provided to them. A definition of traumatic brain injury is presented, and disorders resulting from TBI are listed, followed by a list of services required by this population. Based on the Head Injury Registry, the incidence figure given for Virginia was 13,203 persons aged 2 through 22. Survey responses were received from 78 school divisions and the Virginia School for the Deaf and Blind, representing 60% of the students in public education in the state. Through the survey, 133 students with traumatic brain injury were identified, which is projected to a total of 220 students statewide. The largest number of students were within the 14-17 age group. Of the students identified, 84% were served within the public school buildings, with the majority being served by special education in self-contained classrooms. A significant number of students were receiving (in addition to academic instruction) physical and/or occupational therapy, functional living skills instruction, special transportation, speech and language services, and health monitoring. Other services received were adapted physical education, counseling, vision therapy, vocational skills, and cognitive retraining. Few students received the benefits of transition services. School division personnel indicated a need for information regarding the provision of services to TBI students. Implications and recommendations are offered. (JDD)

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THE NATURE OF SERVICES PROVIDED STUDENTS WITH TRAUMATIC BRAIN INJURY IN VIRGINIA

Virginia Department of Education

May, 1991

An increasing number of students who have experienced a traumatic brain injury are being educated in public schools, receiving either special education or regular education services. However, there has been a growing concern nationally that students with traumatic brain injury have received inadequate education services. The 1990 reauthorization of the Education for All Handicapped Children's Act (Individuals with Disabilities Education Act [IDEA]) included traumatic brain injury as a separate disability category, largely as a result of the advocacy efforts of the parents and professionals.

Virginia has been similarly sensitive to the needs of persons with traumatic brain injury. Two General Assembly groups have addressed the unique needs of this population (the **Joint Subcommittee Studying the Needs of Head and Spinal Cord Injured Citizens, the Need for Research and the Needs of All Physically Handicapped Persons** [1988] and the **Commission on the Coordination of the Delivery of Services to Facilitate the Self-Sufficiency and Support of Persons with Physical and Sensory Disabilities** [1990]). Both groups have investigated the provision of public school services to students who have experienced traumatic brain injury. Public comments have indicated a concern on the part of parents and providers that a number of public school programs are inadequately providing services to these students.

The Virginia Department of Education has made some effort to improve the nature of the education provided students through the provision of workshops and technical assistance. Unfortunately, thorough technical assistance planning cannot be completed as there is an inadequate source of information regarding either the number of students in Virginia with traumatic brain injury or the nature of the services provided to them. As a result, the Department of Education conducted a survey of local school divisions to obtain the data necessary for implementation of a technical assistance program.

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Background Information

Definition

The National Head Injury Foundation, inc. defines traumatic brain injury as follows:

> Traumatic head injury is an insult to the brain, not of a degenerative or congenital nature but caused by an external physical force, that may produce a diminished or altered state of consciousness, which results in impairment of cognitive abilities or physical functioning. It can also result in the disturbance of behavioral or emotional functioning. These impairments may be either temporary or permanent and cause partial or total functional disability or psychosocial maladjustment. (National Head Injury Foundation, 1988)

Regardless of the severity of the traumatic brain injury, virtually no student (re)enters the public school program free of some change in their cognitive/behavioral status. The following disorders are frequently a result of traumatic brain injury:

communication deficits
language disorders
attention and concentration problems
memory problems
impulsivity
organization deficits
judgement problems
initiation problems
processing deficits
problem-solving deficits
rigidity
fatigue
motor deficits (paralysis, spasticity, tremors)
spatial disorientation
reduced eye-hand coordination.

Each student with traumatic brain injury presents a different series of strengths and needs, dependent upon the site of the brain injury and the student's pre-morbid status. These students typically require services to assist with the transition from hospital (or rehabilitation center) to school. Effective school teams generally involve an inter-disciplinary approach including special and regular educators as well as related services personnel (speech-language pathologists, occupational therapists, psychologists). The nature of the programs required in the school setting are diverse, dependent upon the student's abilities. Services may include the following:

speech-language services
occupational therapy
cognitive development/retraining
compensation for cognitive/memory deficits
functional living skills
physical therapy
development of decision-making and problem solving skills
health services
counseling.

In addition to these services, students will benefit from integration in the regular education academic and vocational programs, with accommodations as appropriate to their learning needs.

Incidence Figures

Each year, approximately 165,000 children will be hospitalized as a result of a traumatic brain injury received from motor vehicle accidents, falls, sports injuries and abuse. Of these, 16,000 to 20,000 experience moderate to severe deficits. The highest frequency is found during the early adolescent and adolescent years Students may receive these injuries before entering school, or during their school enrollment.

According to the National Association of State Directors of Special Education (1991) one study in New England revealed that 12% of children in special education were found to have had some form of head injury, knockout or short term coma in their youth, and this injury was not reflected in the special education assessment process.

A sizeable number of persons aged 2 through 22 have experienced a traumatic brain injury in Virginia. The Head Injury Registry, roster of all persons experiencing a traumatic head injury, as reported by medical personnel had logged 13,203 persons aged 2 through 22 as of November 16, 1990.

Study

Survey

In November, 1990, the Department of Education surveyed public school divisions in the Commonwealth and the Virginia School for the Deaf and Blind at Hampton (VSDB-H) to gather information regarding students with traumatic brain injuries in Virginia. The purpose of the survey was to identify the number of students in the state who are known to have experienced a traumatic head injury. A secondary purpose was to develop a picture of the types of educational services these students receive.

Surveys were disseminated to all public school division special education directors and the Superintendent at VSDB-H (n = 137). Overall, responses were received from 78 school divisions and (VSDB-H) (a 58% response rate). The response was not consistent from all regions of the state, with a lower response from region three (see Table 1).

Table 1
Survey Response

Region	Number	Percent
I	18	64%
II	9	53%
III	5	29%
IV	11	55%
V	14	64%
VI	11	73%
VII	10	53%

The 78 responding divisions comprise represent 60% of the students in public education in the state.

Results

Incidence

A total of 133 students identified as having traumatic brain injury were located through the survey. This may be projected to a total of 220 students statewide, based upon the populations of the represented school divisions. Generally, a very small number of students were identified in each division, and a number of divisions had no such students. The largest number of students were within the 14 - 17 age group (44).

In general, the student's file did not indicate the presence of a traumatic brain injury, as only 36% of the students had a record of the injury in their Category I (personal identification information) file. Traumatic brain injury was noted on the **"School Entrance Physical and Immunization Certificate"** for only 27 students. Students eligible for special education generally had traumatic brain injury indicated within their Category II (confidential information) file (82%). More often, it appeared on one of the assessment reports (socio-cultural 69%, psychological 71%), than it did on the IEP (33%).

When comparing the results of this survey with incidence figures suggested by the Head Injury Registry it appears that the incidence of traumatic brain injury is under-represented by the school division. This situation is not unique to Virginia, and experiences elsewhere may explain these results. Frequently, no referral to the school division is made by members of the medical profession or the family due to the assumption that the student will not have any difficulty in school. In other cases, the traumatic brain injury occurred prior to the student's entrance into school and data regarding the injury was not included in school physical examinations.

Students with traumatic brain injury were identified according to a wide variety of disability categories. More students were identified with specific learning disabilities than any other category, as depicted in Table 2.

Table 2
Disability Category Identified

specific learning disability	33%
other health impairment	17%
speech and language impairment	14%
orthopedic impairment	14%
multihandicapped	14%
developmental delay	11%
severe-profound handicap	5%
emotional disturbance	5%
educable mental retardation	5%
trainable mental retardation	5%

(Note: total equals more than 100% because some students were identified with more than one disability.)

Service Delivery

Of the students who were identified as having traumatic brain injury, most are served within the public school buildings (84%) The majority had been found eligible for special education services (84%). A small number of students refused any type of service (7%).

Results indicate that a full continuum of service placement options is available to students with traumatic brain injury as summarized in Table 3. The majority of students served by special education received services in the self-contained environment (52%).

Table 3
Student Placement

self-contained classroom	52%
resource services	38%
homebound services	8%
residential placement	3%

Table 4 illustrated that a variety of related services were provided students. A review of the results indicates that a

significant number of students are receiving physical and/or occupational therapy and/or adapted physical education, implying that a number of students have physical deficits. Many of the students continue to need health services, as evidenced by the thirty-one percent who receive health monitoring. It is of interest that seven percent of the children receive visual therapy. A comparison of the incidence of service provided with the disability category by which the students are identified reveals that many services are provided which do not align with the disability category. Students may have a secondary disability (e.g., visual impairment, health impairment, orthopedic impairment) for which they are receiving services.

It is noted that cognitive retraining, an instructional/rehabilitation technique used to assist persons with traumatic brain injury in the recovery of organization and memory skills and the development of appropriate compensation techniques, was provided to only a small number of students. When this service was provided, it was implemented by the special education teacher.

Table 4
Services Provided

occupational therapy	48%
physical therapy	45%
speech and language services	45%
special transportation	32%
health monitoring	31%
adapted physical education	24%
counseling	14%
vision therapy	8%
academic instruction	68%
functional living skills	48%
vocational skills	29%
cognitive retraining	6%

(Note: total equals more than 100% because some students were identified with more than one disability.)

The nature of the deficits presented by a student with traumatic brain injury require the completion of neuropsychological evaluation. A number of students had received a neuropsychological evaluation (46%). However, only one school division was able to provide this evaluation in-house, indicating that most school divisions have to purchase this service.

The process of transitioning from one setting to another is frequently difficult for the student and family. Unfortunately, survey results indicate that few students received the benefits of transition services: 21% received transition services from hospital to school; 13% received services from rehabilitation center to school and 16% received services from home to school.

Staff Development Needs

School division personnel indicated a need for information regarding the provision of services to students identified with traumatic brain injury. The following topics were mentioned:

information regarding medical condition and educational implications;
information on long-term and short-term effects of the injury;
prognosis for students with traumatic brain injury;
cooperation with medical community;
transition from hospital to school;
the role of the public school in provision of services;
assessment of students;
instructional strategies, materials and curricula (especially cognitive retraining, behavior management, social skills).

IMPLICATIONS AND RECOMMENDATIONS:

1. The population of students with traumatic brain injury is apparently under represented, or unknown to public school administrative and instructional staff. As a result, many students may be exhibiting academic and social behaviors which reflect their traumatic brain injury, yet school personnel are unaware of this relationship.

   The joint efforts of the Departments of Health and Education to revise the **School Entrance Physical and Immunization Certificate**, including a question regarding history of traumatic brain injury should positively impact on divisions' ability to identify and track these students.

   It is recommended that the Department provide technical assistance to school divisions regarding the identification of students with traumatic brain injury. Such assistance should also include behaviors typical of students with traumatic brain injury and their impact on students' academic performance. In addition, information should be provided regarding eligibility requirements, providing guidance regarding how the traumatic brain injury adversely effects education.

2. Students with traumatic brain injury do not appear to be receiving the unique programs necessary for their disability. The completion of neuropsychological evaluations and the provision of cognitive retraining are apparently insufficient.

   It is recommended that the Department provide technical assistance to school personnel in the areas of neuropsychological training and cognitive retraining.

3. School division instructional and administrative personnel require assistance from the Department in specific areas of staff development.

   It is recommended that the Department develop a comprehensive technical assistance program to provide information regarding identification, assessment and provision of services for students with traumatic brain injury.

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